

SEMICONDUCTOR DEVICE WITH STRAIN RELIEVING BUMP DESIGN

ABSTRACT

A semiconductor device (51) is provided. The device (51) comprises a die (53) having a contact pad (61) thereon, a redistribution conductor (59) having a base portion (64) which is in electrical communication with the contact pad (61) and a laterally extending portion (63), a bumped contact (65) which is in electrical communication with the redistribution conductor (59), and a passivation layer (57) disposed between the laterally extending portion (63) of the redistribution conductor (59) and the die (53). Preferably, the redistribution conductor (59) is convoluted and is adapted to peel or delaminate from the passivation layer (57) under sufficient stress so that it can shift relative to the passivation layer (57) and base portion (64) to relieve mechanical stress between substrate (69) and the die (53). Bump and coiled redistribution conductor (59) accommodating small CTE mis-match strain without failure allows DCA flip-chip to be reliable without underfill or additional assembly process.